

# RESEARCH SNAPSHOT

From the CIPHER Knowledge Translation Team

Canadian Institute for  
Pandemic Health  
Education and Response

**CIPHER**



**ICEISP**

Institut canadien  
d'éducation et d'intervention  
en santé en cas de pandémie



## The Impact of Prolonged Personal Protective Equipment (PPE) use on Canadian Health Professionals

### WHAT YOU NEED TO KNOW & WHAT THIS RESEARCH IS ABOUT.

The COVID-19 pandemic has changed the landscape of healthcare in Canada. Although public mask mandates have currently subsided, health professionals across Canada are required to wear PPE throughout their shift for the health and safety of staff and patients.

Common PPE for health professionals includes masks, face shields, protective goggles, surgical gloves, and gowns. Early research has shown that 78% of health professionals experience skin irritations as a result of prolonged PPE usage. Studies assessing prolonged PPE usage in other countries have highlighted some common skin irritations on the nasal bridge, cheeks, forehead, and hands, including:

- pressure sores
- burning
- itching
- redness or rash
- acne
- thinning and scaling of skin

Examining the outcomes of prolonged PPE usage is vital, as there are important clinical implications regarding staff and patient health. Skin irritations are thought to increase the risk of spread of bacterial, viral, and fungal infections. Further, skin irritations caused by PPE increase the likelihood of staff violating safety protocols and/or incorrectly donning and doffing PPE. Better understanding these challenges faced by health professionals helps raise awareness so the physical and mental impacts associated with prolonged PPE usage can be addressed.

### WHAT DID THE RESEARCHERS DO?

The researchers developed and deployed a self-administered online survey that was conducted from October 2020 to April 2021 to assess PPE-related skin injuries among Canadian health professionals.

Convenience sampling was used and the survey was sent to health professionals through their provincial or national associations.

A total of **757** health professionals responded:



**650** identified as female



**87** identified as male



**2** identified as non-binary



**7** chose not to declare, and **11** did not disclose their gender identity



**433** Registered Nurses responded



**99** Physicians responded



The largest group was represented by **207** acute care hospital unit workers



The rest of participants represented a wide range of health professionals & sectors



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**KEYWORDS:** personal protective equipment, skin damage, COVID-19, dermatitis, device-related pressure injury

# The Impact of Prolonged Personal Protective (PPE) Equipment use on Canadian Health Professionals



## WHAT DID THE RESEARCHERS FIND?

PPE usage and issues reported:

**85%** Always wear a mask while at work

**90%** Wear either goggles or face shields

- 39% of respondents wore the same mask all shift and only removed it at the end of the shift. 61% changed their mask 2-3 times throughout their shift.
- 41% of respondents wore their face coverings throughout their entire shift, except for when on break.
- 51% of respondents reported never or occasionally moisturizing their hands, with 49% moisturizing at least once a day.
- 43% of respondents stated that their mental health was negatively impacted from wearing PPE. 15% looked for assistance from the internet, family or friends, and only 11% sought help from a mental health professional.

Issues resulting from prolonged PPE usage	Issue from mask/face protection use (%)	Issue from glove use (%)
Soreness/pressure injury behind ears	70%	N/A
Acne (new or worsening)	52%	N/A
Runny nose/sneezing	45%	N/A
Itch (face, eyelids, lips, hands)	39%	26%
Dry skin	37%	53%
Red skin	36%	30%
Sore skin	31%	N/A

Table. Most common issues reported from prolonged PPE usage. Only those above 25% shown.

## HOW CAN YOU USE THIS RESEARCH?

**For health professionals:**

To reduce buildup of bacteria and risk of skin issues on the face, masks should be changed as soon as they are wet, or at a minimum of every 4 hours. Be sure to also familiarize yourself with correct donning and doffing procedures. Moisturize your hands daily and treat skin injuries or irritations with appropriate moisturizers, protectants, or dressings. Seek out peer and professional supports if you are struggling mentally.

**For employers and leadership:**

Provide ample PPE so staff can replace their equipment frequently to prevent buildup of bacteria. Further, provide your team with the necessary preventative supplies such as hand moisturizer and skin protectants to maintain skin health. Ensure that there are a variety of PPE sizes available for staff and offer education on skin preparation and maintenance. Additionally, offer mental health resources and encourage staff to access help.

**For manufacturers of PPE:**

N95 masks and other PPE are largely manufactured for men and are ill-fitted for females. Poorly fitted masks can increase the likelihood of skin injury and irritation, and are overall less effective. Nearly 79% of health professionals in Canada identify as female, so it is crucial that manufacturers offer better suited options for all health professionals.

### CITATION:

LeBlanc, K., Woo, K., Wiesenfeld, L., Bresnai-Harris, J., Heerschap, C., Butt, B., Chaplain, V., & Wiesenfeld, S. (2022). Impact of prolonged PPE use on Canadian health professionals. *British Journal of Nursing*, 31(15), S30-S36. <https://doi.org/10.12968/bjon.2022.31.15.S30>.



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